

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) An air quality system for removing a pollutant from an air stream, and for providing cleansed air to an interior air space, said air quality system comprising:

5 at least one air cleaner unit in communication with said interior air space,

wherein said at least one air cleaner unit provides only a single flow path for said air stream,

wherein said at least one air cleaner unit comprises:

10 [[a]] first and second photocatalytic oxidation units; ~~and~~

[[a]] first and second adsorbent units; ~~and~~;

wherein said first photocatalytic oxidation unit is located upstream or downstream from said first adsorbent unit;

wherein said first adsorbent unit is adapted to reversibly adsorb said pollutant from said air stream at a first concentration of said pollutant;

15 wherein said first adsorbent unit is further adapted to desorb said pollutant into said air stream at a second concentration of said pollutant;

wherein said second adsorbent unit is adapted to adsorb said pollutant from said air stream at a second concentration of the pollutant;

20 wherein said second photocatalytic oxidation unit is located downstream from said second adsorbent unit; and

wherein the second photocatalytic oxidation unit is contiguous with the interior air space.

2. (Original) The air quality system of claim 1, wherein said first photocatalytic oxidation unit is physically separated from said first adsorbent unit.

3. (Original) The air quality system of claim 1, wherein said first photocatalytic oxidation unit is located downstream from said first adsorbent unit.

4. (Currently amended) The air quality system of claim 3, wherein:

~~said first adsorbent unit is adapted to reversibly adsorb said pollutant from said air stream at a first concentration of said pollutant, and~~

5 said first adsorbent unit is further adapted to desorb said pollutant into said air stream at a second concentration of said pollutant.

5-6. (Canceled)

7. (Currently amended) The air quality system of claim [[6]] 1, wherein:

said first adsorbent unit includes a first adsorbent material having a first isotherm curve for said pollutant,

5 said second adsorbent unit includes a second adsorbent material having a second isotherm curve for said pollutant, and

said second isotherm curve is steeper than said first isotherm curve.

8. (Canceled)

9. (Currently amended) The air quality system of claim [[8]] 1,
wherein said first photocatalytic oxidation unit comprises at least one
photocatalytic panel, wherein said photocatalytic panel comprises a
photocatalytic support, and wherein said photocatalytic panel comprises
5 expanded aluminum.

10. (Original) The air quality system of claim 1, wherein:
said first adsorbent unit includes a first adsorbent material, said
first adsorbent material having micropores in the range of from about 5 to 10 Å
in diameter.

11. (Original) The air quality system of claim 10, wherein:
at least about 30% of said micropores have a diameter in the
range of from about 5 to 10 Å.

12. (Original) The air quality system of claim 10, wherein:
said first adsorbent material comprises an activated carbon fabric.

13. (Original) The air quality system of claim 1, wherein said
interior air space is within an aircraft.

14. (Canceled)

15. (Original) The air quality system of claim 1, wherein said at
least one air cleaner unit is adapted for passage of a unidirectional air stream
therethrough.

16. (Original) The air quality system of claim 1, wherein said at
least one air cleaner unit is adapted for continuously providing a stream of
cleansed air to a location downstream from said at least one air cleaner unit.

17. (Currently amended) The air quality system of claim 1,
further comprising a particulate filter upstream from said ~~at least one~~ first
photocatalytic oxidation unit and said ~~at least one~~ first adsorbent unit.

18. (Original) The air quality system of claim 1, wherein said at least one air cleaner unit is adapted for operation at a constant temperature.

19. (Original) The air quality system of claim 1, wherein said at least one air cleaner unit is adapted for operation at ambient temperature.

20-25. (Canceled)

26. (Currently amended) A vehicle, comprising:
an air quality system including at least one air cleaner unit and an interior air space,

5 said at least one air cleaner unit in communication with said interior air space,

said at least one air cleaner unit comprising a first photocatalytic oxidation unit, ~~a first adsorbent unit~~, and an ~~a second~~ adsorbent unit,

said ~~first~~ photocatalytic oxidation unit is located downstream from said ~~first~~ adsorbent unit, and

10 ~~said second adsorbent unit located downstream from said first photocatalytic oxidation unit;~~

said adsorbent unit and said photocatalytic oxidation unit arranged within a housing,

said housing defining a single flow path for an air stream, and

15 said photocatalytic oxidation unit arranged orthogonal to said air stream.

27. (Original) The vehicle of claim 26, wherein said at least one air cleaner unit further comprises a second photocatalytic oxidation unit, and

said second photocatalytic oxidation unit is located downstream from said second adsorbent unit.

28. (Original) The vehicle of claim 26, wherein:
said first photocatalytic oxidation unit and said second photocatalytic oxidation unit each comprise at least one photocatalytic panel and at least one UV source, and
5 said at least one panel comprising a photocatalytic support and a photocatalytic agent disposed on said photocatalytic support.

29. (Original) The vehicle of claim 26, wherein:
said first adsorbent unit includes a first adsorbent material, and
said first adsorbent material comprises an activated carbon fabric having micropores in the range of from about 5 to 10 Å in diameter.

30. (Original) The vehicle of claim 26, wherein said interior air space includes an aircraft cabin.

31. (Original) The vehicle of claim 26, wherein:
said interior air space includes a flight deck,
said vehicle includes an air intake unit in communication with said flight deck, and
5 said at least one air cleaner unit is arranged between said air intake unit and said flight deck.

32. (Currently amended) The vehicle of claim 26, further comprising an environmental control system (ECS) ECS, and wherein said at least one air cleaner unit is located downstream from said ECS.

33-63. (Canceled)

64. (Currently amended) The air quality system of claim 1,
wherein:

said first photocatalytic oxidation unit comprises at least one
photocatalytic panel and at least one UV source, and

5 said photocatalytic panel comprises a photocatalytic support and a
photocatalytic agent on a ~~said~~ metal support.

65. (Previously presented) The air quality system of claim 1,
wherein:

said first photocatalytic oxidation unit comprises a plurality of
photocatalytic panels and a plurality of UV sources, and

5 said plurality of photocatalytic panels and said plurality of UV
sources are arranged linearly and parallel to each other, with each of said
plurality of UV sources alternating with each of said plurality of photocatalytic
panels.

66. (Canceled)